

WHAT IS CLAIMED AS NEW AND IS DESIRED TO BE SECURED BY

LETTERS PATENT OF THE UNITED STATES IS:

1. A recovered toner classifier in an image forming apparatus, comprising:

5 a net member positioned to receive toner recovered from an image forming operation; and

a brush member movable relative to the net member and configured to slidably rub the net member during the relative movement,

10 wherein the recovered toner is conveyed and classified in the net member.

2. The recovered toner classifier according to claim 1, wherein:

15 the net member comprises a filter having an inlet for the recovered toner at one end of the filter in a direction of a length of the cylindrical-shaped filter and an outlet for discharging disposal toner at the other end of the filter, the filter being rotatable around a central axis
20 thereof;

the brush member comprises a rotatable shaft, a fur brush spirally provided on an outer peripheral surface of the shaft for rotation integrally with the shaft and a non-brush region continuously formed on the shaft from the inlet of the

filter to the outlet of the filter, wherein the fur brush is concentrically positioned in the filter such that a tip portion of the fur brush is in press-contact with an inner peripheral surface of the filter; and

5 a screw conveyer having a screw provided on a portion of the shaft upstream of the inlet of the filter, and configured to convey the recovered toner to the inlet of the filter.

10 3. The recovered toner classifier according to claim 2, wherein the filter and fur brush are driven to rotate at a different circumferential velocities from each other and in the same direction.

15 4. The recovered toner classifier according to claim 2, wherein the filter and fur brush are driven to rotate in different directions from each other.

20 5. The recovered toner classifier according to claim 3, wherein the non-brush region of the brush member is formed in parallel with the axis of the shaft.

6. The recovered toner classifier according to claim 4, wherein the non-brush region of the brush member is formed in

parallel with the axis of the shaft.

7. The recovered toner classifier according to claim 3,
wherein the fur brush of the brush member is a spiral brush
5 spirally provided on an outer peripheral surface of the
shaft, with a predetermined space between turns of the spiral
brush.

8. The recovered toner classifier according to claim 4,
10 wherein the fur brush of the brush member is a spiral brush
spirally provided on an outer peripheral surface of the
shaft, with a predetermined space between turns of the spiral
brush.

15 9. The recovered toner classifier according to claim 2,
wherein the filter further comprises:

a main including a wire member formed of one of metal
and resin; and

a frame formed of resin,

20 wherein the main body of the filter is fixedly provided
to an inner peripheral surface of the frame.

10. The recovered toner classifier according to claim
2, further comprising a projection formed on the inner

peripheral surface of the filter, wherein the rotating tip portion of the brush is positioned to flick the projection during the relative movement.

5 11. The recovered toner classifier according to claim 2, further comprising:

 a paddle provided to a portion of the filter that forms the outlet for the disposal toner, the paddle being configured to rotate integrally with the filter.

10 12. A method for classifying recovered toner, comprising the steps of:

 rotating a cylindrical-shaped filter having an inlet for the recovered toner at one axial end of the filter in a direction of a length of the filter and an outlet for discharging disposal toner at the other axial end of the filter;

15 rotating a fur brush in the filter integrally with rotation of a shaft while a tip portion of a brush is in press-contact with an inner peripheral surface of the filter, the fur brush being spirally provided on an outer peripheral surface of the shaft and a non-brush region being continuously formed from the inlet of the filter to the outlet of the filter; and

rotating a screw conveyer upstream of the inlet of the filter to convey the recovered toner to the inlet of the filter.

5 13. The method according to claim 12, further comprising:

rotating the filter and fur brush at a different circumferential velocities from each other and in the same direction.

10 14. The method according to claim 12, further comprising:

rotating the filter and fur brush in different directions from each other.

15 15. A recovered toner classifier in an image forming apparatus, comprising:

a net member positioned to receive toner recovered from an image forming operation; and

20 brush means for slidingly rubbing the net member, wherein the recovered toner is conveyed and classified.

16. The recovered toner classifier according to claim 15, wherein:

the net member comprises a filter having an inlet for the recovered toner at one end of the filter in a direction of a length of the cylindrical-shaped filter and an outlet for discharging disposal toner at the other end of the filter, the filter being rotatable around a central axis thereof;

the brush means comprises a rotatable shaft, a fur brush spirally provided on an outer peripheral surface of the shaft for rotation integrally with the shaft and a non-brush region continuously formed on the shaft from the inlet of the filter to the outlet of the filter, wherein the fur brush is concentrically positioned in the filter such that a tip portion of the fur brush is in press-contact with an inner peripheral surface of the filter; and

a screw conveying means having a screw provided on a portion of the shaft upstream of the inlet of the filter, to convey the recovered toner to the inlet of the filter.

17. The recovered toner classifier according to claim 16, wherein the filter and brush means rotate at a different circumferential velocities from each other in the same direction.

18. The recovered toner classifier according to claim

16, wherein the filter and brush means rotate in a different directions from each other.

19. The recovered toner classifier according to claim
5 17, wherein the non-brush region of the brush means is formed in parallel with the axis of the shaft.

20. The recovered toner classifier according to claim
18, wherein the non-brush region of the brush means is formed
10 in parallel with the axis of the shaft.

21. The recovered toner classifier according to claim
17, wherein the brush of the brush means is spirally provided
on the outer peripheral surface of the shaft, with a
15 predetermined space between turns of the spiral brush.

22. The recovered toner classifier according to claim
18, wherein the brush of the brush means is spirally provided
on the outer peripheral surface of the shaft, with a
20 predetermined space between turns of the spiral brush.

23. The recovered toner classifier according to claim
16, wherein the filter further comprises:

a main body comprises a wire member formed of one of

metal and resin; and

a frame formed of resin,

wherein the main body of the filter is fixedly provided to an inner peripheral surface of the frame.

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24. The recovered toner classifier according to claim 16, further comprising a projection formed on the inner peripheral surface of the filter, wherein the rotating tip portion of the brush is positioned to flick the projection during the relative movement.

25. The recovered toner classifier according to claim 16, further comprising:

a paddle provided to a portion of the filter that forms the outlet for the disposal toner, the paddle being configured to rotate integrally with the filter.